CLAIMS

What is claimed is:

1. In a base portion of an electronic apparatus, a method of operation comprising:

detecting for presence of a removably attached interchangeable cover;

authenticating the removably attached interchangeable cover as an eligible cover; and

operating the electronic apparatus, enabling/disabling all or selected functions/features offered by the base portion and the removably attached interchangeable cover in view of whether the removably attached interchangeable cover is authenticated.

2. The method of claim 1, wherein said authenticating comprises

generating a first challenge;

providing said first challenge to said removably attached interchangeable cover;

receiving from the removably attached interchangeable cover a first response to the first challenge; and

verifying correctness of said received first response.

3. The method of claim 2, wherein said providing comprises providing said first challenge in a first encrypted form, and said authenticating further comprises encrypting said first challenge into said first encrypted form using a set of one or more session keys.

4. The method of claim 3, wherein said authenticating further comprises generating said set of one or more session keys, and pre-providing said generated set of one or more session keys to said removably attached interchangeable cover.

5. The method of claim 4, wherein said pre-providing comprises pre-providing said generated set of one or more session keys in a second encrypted form, and said authenticating further comprises encrypting said generated set of one or more session keys into said second encrypted form using a public key of the removably attached interchangeable cover.

6. The method of claim 5, wherein said authenticating further comprises requesting and receiving said public key of the removably attached interchangeable cover from the removably attached interchangeable cover.

7. The method of claim 6, wherein said receiving of said public key of the removably attached interchangeable cover from the removably attached interchangeable cover comprises receiving said public key of the removably attached interchangeable cover in a signed form from the removably attached interchangeable cover, and said authenticating further comprises verifying said received public key as having been signed by an authorized party using a public signing key of a trusted certification authority.

8. The method of claim 7, wherein said verification of said received public key of the removably attached interchangeable cover as having been signed by an authorized party further comprises determining whether the public signing key has

been revoked by the trusted certification authoring, and recovering said public key of the removably attached interchangeable cover as part of the verification process.

9. The method of claim 7, wherein the base portion of the electronic apparatus and the removably attached interchangeable cover are manufactured by a first and a second manufacturer respectively, and said trusted certification authority is a common licensor licensing respective manufacturing rights to said first and second manufacturers.

10. The method of claim 7, wherein said receiving of said public key of the removably attached interchangeable cover from the removably attached interchangeable cover comprises receiving a certificate signed by said trusted certification authority comprising said public key of the removably attached interchangeable cover, and said authenticating further comprises verifying said certificate using a public master key of the trusted certification authority.

11. The method of claim 2, wherein said first challenge comprises a challenge to provide the base portion with a data block and a signature of the data block, said first response comprises the data block and the corresponding signature requested, and said verification comprises verifying correspondence of the provided data block to the provided signature using a public signing key corresponding to a private signing key employed to generate the signature of the data block.

12. The method of claim 11, wherein said verification of correspondence comprises recovering said corresponding public signing key using a public signing key of a certification authority, generating a hash value for the received data block,

generating a check signature based on the generated hash value and the recovered public signing key, and comparing the check signature and the provided signature of the data block.

13. The method of claim 11, wherein said data block comprises a manifest describing implementing instructions of at least a subset of the functions/features of the removably attached interchangeable cover.

14. The method of claim 2, wherein the method further comprises

generating a second challenge;

providing said second challenge to said removably attached interchangeable cover;

receiving from the removably attached interchangeable cover a second response to the second challenge; and

verifying correctness of said received second response.

15. The method of claim 14, wherein said second challenge is based at least in part on said first response.

16. The method of claim 15, wherein

said first challenge comprises providing the base portion with a manifest describing implementing instructions of at least a subset of the functions/features of the removably interchangeable cover and corresponding hash values, and a signature of the manifest;

said second challenge comprises providing the base portion with the described implementing instructions of at least one of functions/features of the removably attached interchangeable cover; and

said verification of the second response comprises generating a compare hash value for each of the at least one functions/features of the removably attached interchangeable cover provided, and comparing each of the generated compare hash values to the corresponding hash value previously provided as part of the signed manifest.

17. The method of claim 1, wherein said method further comprises requesting and receiving implementing instructions/data of a personalization feature from the removably attached interchangeable cover to personalize the electronic apparatus.

18. The method of claim 1, wherein said method further comprises requesting and receiving implementing instructions/data of a function from the removably attached interchangeable cover to enrich the functions of the electronic apparatus.

19. The method of claim 1, wherein said enabling/disabling comprises disabling functions/features previously loaded into the base portion that are to be enabled only with the presence of particular interchangeable covers.

20. The method of claim 1, wherein said enabling/disabling comprises disabling selected ones of the functions/features of the base portion if the removably attached interchangeable cover is not authenticated.

21. In an interchangeable cover removably attachable to a base portion of an electronic apparatus, a method of operation comprising:

receiving a first challenge from a base portion of an electronic apparatus to which to interchangeable cover is removable attached, to facilitate the base portion in determining that the interchangeable cover is an eligible cover; and

in response, generating and providing the base portion with a first response to said first challenge to facilitate the base portion in making said determination.

22. The method of claim 21, wherein said first challenge is received in a first encrypted form, and said method further comprises decrypting said first challenge using a set of one or more session keys.

23. The method of claim 22, wherein said method further comprises pre-receiving said set of one or more session keys from the base portion.

24. The method of claim 23, wherein said set of one or more session keys are received in a second encrypted form, and said method further comprises decrypting to recover said set of one or more session keys using a private key of the removably attached interchangeable cover corresponding to a public key of the removably attached interchangeable cover employed by the base portion to encrypt said set of one or more session keys.

25. The method of claim 24, wherein said method further comprises

receiving a request from the base portion for and said public key of the removably attached interchangeable cover; and

in response, providing said public key of the removably attached interchangeable cover to the base portion.

26. The method of claim 25, wherein said providing of said public key of the removably attached interchangeable cover comprises providing said public key of the removably attached interchangeable cover in a signed form, signed by an authorized party using a signing key of a trusted certification authority.

27. The method of claim 26, wherein the base portion of the electronic apparatus and the removably attached interchangeable cover are manufactured by a first and a second manufacturer respectively, and said trusted certification authority is a common licensor licensing respective manufacturing rights to said first and second manufacturers.

28. The method of claim 26, wherein said providing of said public key of the removably attached interchangeable cover comprises providing a certificate signed by said trusted certification authority comprising said public key of the removably attached interchangeable cover.

29. The method of claim 21, wherein said first challenge comprises a challenge to provide the base portion with a data block and a signature of the data block, and said first response comprises the data block and the corresponding signature requested, the signature being pre-generated using a private signing key.

30. The method of claim 29, wherein said data block comprises a manifest describing implementing instructions of at least a subset of the functions/features of the removably attached interchangeable cover.

31. The method of claim 21, wherein the method further comprises

receiving a second challenge from the base portion to further facilitate said base portion in determining eligibility of the interchangeable cover; and

in response, providing the base portion with a second response to the second challenge to further facilitate said base portion in determining eligibility of the interchangeable cover.

32. The method of claim 31, wherein said second challenge is based at least in part on said first response.

33. The method of claim 32, wherein

said first challenge comprises providing the base portion with a manifest describing implementing instructions of at least a subset of the functions/features of the removably interchangeable cover and corresponding hash values, and a signature of the manifest; and

said second challenge comprises providing the base portion with the described implementing instructions of at least one of functions/features of the removably attached interchangeable cover.

34. The method of claim 21, wherein said method further comprises receiving a request and in response, providing implementing instructions/data of a

personalization feature from the removably attached interchangeable cover to personalize the electronic apparatus.

35. The method of claim 21, wherein said method further comprises receiving a request and in response, providing implementing instructions/data of a function from the removably attached interchangeable cover to enrich the functions of the electronic apparatus.

36. An apparatus comprising:

a base body case;

a processor encased within said base body case for use to execute instructions;

storage medium encased within said base body case, coupled to said processor, and having stored therein a plurality of instructions designed to implement a plurality of functions/features, to authenticate a removably attached smart interchangeable cover attached to the base body case as an eligible cover, and to operate the electronic apparatus, enabling/disabling all or selected ones of the implemented functions/features and functions/features offered by the removably attached smart interchangeable cover consistent with whether the removably attached smart interchangeable cover is authenticated.

37. The apparatus of claim 36, wherein said instructions enable the apparatus to authenticate a removably attached interchangeable cover by

generating a first challenge;

providing said first challenge to said removably attached interchangeable cover;

receiving from the removably attached interchangeable cover a first response to the first challenge; and

verifying correctness of said received first response.

38. The apparatus of claim 37, wherein said instructions enable the apparatus to effectuate said providing by providing said first challenge in a first encrypted form, and said authenticating further comprises encrypting said first challenge into said first encrypted form using a set of one or more session keys.

39. The apparatus of claim 38, wherein said instructions enable the apparatus to include as part of said authenticating, generation of said set of one or more session keys, and pre-providing of said generated set of one or more session keys to said removably attached interchangeable cover.

40. The apparatus of claim 39, wherein said instructions enable the apparatus to effectuate said pre-providing by pre-providing said generated set of one or more session keys in a second encrypted form, and include as part of said authenticating, encryption of said generated set of one or more session keys into said second encrypted form using a public key of the removably attached interchangeable cover.

41. The apparatus of claim 40, wherein said instructions enable the apparatus to include as part of said authenticating, request and receipt of said public key of the removably attached interchangeable cover from the removably attached interchangeable cover.

42. The apparatus of claim 41, wherein said instructions further enable the to receive said public key of the removably attached interchangeable cover in a signed form from the removably attached interchangeable cover, and include as part of said authenticating, verification of said received public key as having been signed by an authorized party using a public signing key of a trusted certification authority.

43. The apparatus of claim 42, wherein said instructions enable the apparatus to determine whether the public signing key has been revoked by the trusted certification authoring, and to recover said public key of the removably attached interchangeable cover as part of the verification process.

44. The apparatus of claim 43, wherein the base portion of the electronic apparatus and the removably attached interchangeable cover are manufactured by a first and a second manufacturer respectively, and said trusted certification authority is a common licensor licensing respective manufacturing rights to said first and second manufacturers.

45. The apparatus of claim 42, wherein said receiving of said public key of the removably attached interchangeable cover from the removably attached interchangeable cover comprises receiving a certificate signed by said trusted certification authority comprising said public key of the removably attached interchangeable cover, and said instructions further enable the apparatus to include as part of said authenticating, verification of said certificate using a public master key of the trusted certification authority.

46. The apparatus of claim 37, wherein said first challenge comprises a challenge to provide the base portion with a data block and a signature of the data block, said first response comprises the data block and the corresponding signature requested, and said instructions enable the apparatus to effectuate said verification by verifying correspondence of the provided data block to the provided signature using a public signing key corresponding to a private signing key employed to generate the signature of the data block.

47. The apparatus of claim 46, wherein said instructions enable the apparatus to effectuate said verification of correspondence by recovering said corresponding public signing key using a public signing key of a certification authority, generating a hash value for the received data block, generating a check signature based on the generated hash value and the recovered public signing key, and comparing the check signature and the provided signature of the data block.

48. The apparatus of claim 46, wherein said data block comprises a manifest describing implementing instructions of at least a subset of the functions/features of the removably attached interchangeable cover.

49. The apparatus of claim 37, wherein said instructions further enable the apparatus to authenticate said removably attached interchangeable cover by

generating a second challenge;

providing said second challenge to said removably attached interchangeable cover;

receiving from the removably attached interchangeable cover a second response to the second challenge; and

verifying correctness of said recovered second response.

50. The apparatus of claim 49, wherein said second challenge is based at least in part on said first response.

51. The apparatus of claim 50, wherein

said first challenge comprises providing the base portion with a manifest describing implementing instructions of at least a subset of the functions/features of the removably interchangeable cover and corresponding hash values, and a signature of the manifest;

said second challenge comprises providing the base portion with the described implementing instructions of at least one of functions/features of the removably attached interchangeable cover; and

said verification of the second response comprises generating a compare hash value for each of the at least one functions/features of the removably attached interchangeable cover provided, and comparing each of the generated compare hash values to the corresponding hash value previously provided as part of the signed manifest.

52. The apparatus of claim 36, wherein said instructions enable the apparatus to request and receive implementing instructions/data of a personalization feature from the removably attached interchangeable cover to personalize the electronic apparatus.

53. The apparatus of claim 36, wherein said instructions enable the apparatus to request and receive implementing instructions/data of a function from the removably attached interchangeable cover to enrich the functions of the electronic apparatus.

54. The apparatus of claim 36, wherein said instructions enable the apparatus to include as part of said enabling/disabling, disabling of functions/features previously loaded into the base portion that are to be enabled only with the presence of particular interchangeable covers.

55. The apparatus of claim 36, wherein s said instructions enable the apparatus to include as part of said enabling/disabling, disabling of selected ones of the functions/features of the base portion if the removably attached interchangeable cover is not authenticated.

56. The apparatus of claim 36, wherein said apparatus is a wireless communication device.

57. The apparatus of claim 56, wherein wireless communication device is a wireless mobile phone.

58. The apparatus of claim 36, wherein said electronic apparatus is a selected one of a personal digital assistant and an electronic gaming device.

59. A cover for an electronic apparatus, comprising:

a cover body to cover a base portion of the electronic apparatus;

a processor disposed on a surface of the cover body for use to execute instructions;

storage medium disposed on a surface of the cover body, coupled to said processor, and having stored therein data and a plurality of instructions designed to authenticate the interchangeable cover to a base portion of an electronic apparatus to which the interchangeable cover is attached.

60. The cover of claim 59, wherein the instructions are designed to enable the cover

to receive a first challenge from a base portion of an electronic apparatus to which to interchangeable cover is removable attached, to facilitate the base portion in determining that the interchangeable cover is an eligible cover; and

in response, to generate and provide the base portion with a first response to said first challenge to facilitate the base portion in making said determination.

61. The cover of claim 60, wherein said first challenge is received in a first encrypted form, and instructions enable the cover to decrypt said first challenge using a set of one or more session keys.

62. The cover of claim 61, wherein said instructions further enable the cover to pre-receive said set of one or more session keys from the base portion.

63. The cover of claim 62, wherein said set of one or more session keys are received in a second encrypted form, and said instructions further enable the cover to decrypt to recover said set of one or more session keys using a private key of the removably attached interchangeable cover corresponding to a public key of the

removably attached interchangeable cover employed by the base portion to encrypt said set of one or more session keys.

64. The cover of claim 63, wherein said instructions further enable the cover to

receive a request from the base portion for and said public key of the removably attached interchangeable cover; and

in response, to provide said public key of the removably attached interchangeable cover to the base portion.

65. The cover of claim 64, wherein said instructions further enable the cover to provide said public key of the removably attached interchangeable cover in a signed form, signed by an authorized party using a signing key of a trusted certification authority.

66. The cover of claim 65, wherein the base portion of the electronic apparatus and the removably attached interchangeable cover are manufactured by a first and a second manufacturer respectively, and said trusted certification authority is a common licensor licensing respective manufacturing rights to said first and second manufacturers.

67. The cover of claim 65, wherein said instructions further enable the cover to effectuate said providing of said public key of the removably attached interchangeable cover by providing a certificate signed by said trusted certification authority comprising said public key of the removably attached interchangeable cover.

68. The cover of claim 60, wherein said first challenge comprises a challenge to provide the base portion with a data block and a signature of the data block, and said first response comprises the data block and the corresponding signature requested, the signature being pre-generated using a private signing key.

69. The cover of claim 68, wherein said data block comprises a manifest describing implementing instructions of at least a subset of the functions/features of the removably attached interchangeable cover.

70. The cover of claim 60, wherein said instructions further enable the cover to

receive a second challenge from the base portion to further facilitate said base portion in determining eligibility of the interchangeable cover; and

in response, to provide the base portion with a second response to the second challenge to further facilitate said base portion in determining eligibility of the interchangeable cover.

71. The cover of claim 70, wherein said second challenge is based at least in part on said first response.

72. The cover of claim 71, wherein

said first challenge comprises providing the base portion with a manifest describing implementing instructions of at least a subset of the functions/features of the removably interchangeable cover and corresponding hash values, and a signature of the manifest; and

said second challenge comprises providing the base portion with the described implementing instructions of at least one of functions/features of the removably attached interchangeable cover.

73. The cover of claim 59, wherein said instructions further enable the cover to receive a request and in response, to provide implementing instructions/data of a personalization feature from the removably attached interchangeable cover to personalize the electronic apparatus.

74. The cover of claim 59, wherein said instructions further enable the cover to receive a request and in response, to provide implementing instructions/data of a function from the removably attached interchangeable cover to enrich the functions of the electronic apparatus.

75. The cover of claim 59, wherein said electronic apparatus is a wireless communication device.

76. The cover of claim 75, wherein wireless communication device is a wireless mobile phone.

77. The cover of claim 59, wherein said electronic apparatus is a selected one of a personal digital assistant and an electronic gaming device.